

WHAT IS CLAIMED IS:

1. A Java run-time system comprising
a stacked-based interpreter for executing a Java program comprising Java bytecode
instructions and Java class structures;
a converter for mapping standard Java symbolic linking strings contained in a
downloaded Java program onto linking identifiers; and
an export table for storing linking identifiers generated by the converter to bind a
reference in a bytecode instruction to be executed to a corresponding link target.
2. A Java run-time system according to claim 1, wherein the converter is
adapted to use a hash function to map the standard Java symbolic linking strings
onto linking identifiers.
3. A Java run-time system according to claim 1, wherein the converter is
adapted to use a parameterized hash function to map the standard Java symbolic
linking strings onto linking identifiers, the parameter being contained in the Java
program to be downloaded.
4. A Java development kit comprising a Java run-time system according to
claim 3 and a Java conversion system for calculating a parameter for standard Java
symbolic linking strings of a Java program to be downloaded on the Java run-time
system.
5. A Java run-time system according to claim 1, said run-time system being
ported on an embedded microcontroller of a smart card.
6. A Java run-time system according to claim 2, said run-time system being
ported on an embedded microcontroller of a smart card.
7. A Java run-time system according to claim 3, said run-time system being
ported on an embedded microcontroller of a smart card.
8. A method for downloading and linking a Java program on a Java run-time
system comprising a stack-based interpreter for executing bytecode instructions,
said Java program comprising Java bytecode instructions and Java class structures
and including Java standard symbolic linking strings to bind a reference in a

bytecode instruction to be executed to a corresponding link target,
comprising the steps of mapping the Java standard symbolic linking strings to
linking identifiers; and storing said linking identifiers in an export table.

5 9. A method according to claim 8, wherein a hash function is used to map the
standard Java symbolic link strings onto linking identifiers.

10 10. A method according to claim 8, wherein a parameterized hash function is
used to map standard Java symbolic linking strings onto linking identifiers, said
parameter being included in the Java program to be downloaded.

15 11. A method according to claim 10, wherein the parameter for the Java
program to be downloaded is used to ensure that the hash function does not map
two symbolic linking strings of Java program to the same linking identifier.

20 12. A program storage device readable by a computer, tangibly embodying a
program of instructions executable by the computer to perform method steps of a
method for downloading and linking a Java program on a Java run-time system
comprising a stack-based interpreter for executing bytecode instructions, said Java
program comprising Java bytecode instructions and Java class structures and
including Java standard symbolic linking strings to bind a reference in a bytecode
instruction to be executed to a corresponding link target, comprising the steps of
mapping the Java standard symbolic linking strings to linking identifiers; and
storing said linking identifiers in an export table.

25 13. A program storage device according to claim 12, wherein a hash function is
used to map the standard Java symbolic link strings onto linking identifiers.

30 14. A program storage device according to claim 12, wherein a parameterized
hash function is used to map standard Java symbolic linking strings onto linking
identifiers, said parameter being included in the Java program to be downloaded.

35 15. A program storage device according to claim 14, wherein the parameter for
the Java program to be downloaded is used to ensure that the hash function does
not map two symbolic linking strings of Java program to the same linking identifier.

16. A program storage device according to claim 12, said computer comprising

an embedded microcontroller of a smart card.